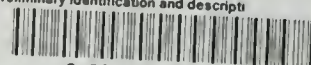


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PRELIMINARY IDENTIFICATION AND DESCRIPTION OF
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BURLINGTON NORTHERN RAIL YARD
CECRA SITE
LIVINGSTON, MONTANA

Montana Department of Health
and Environmental Sciences

Superfund Program

April 2, 1992

PLEASE RETURN

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INTRODUCTION

Remedial actions undertaken pursuant to the Montana Comprehensive Environmental Cleanup and Responsibility Act (CECRA), §§ 75-10-701 through 75-10-724, Montana Code Annotated (MCA), must "attain a degree of cleanup of the hazardous or deleterious substance and control of a threatened release or further release of that substance that assures present and future protection of public health, safety, and welfare and of the environment." § 75-10-721(1), MCA. Additionally, the Montana Department of Health and Environmental Sciences (DHES) "shall require cleanup consistent with applicable state or federal environmental requirements, criteria or limitations" and "shall consider and may require cleanup consistent with substantive state or federal environmental requirements, criteria, or limitations that are well suited to the site conditions." § 75-10-721(2)(a) and (b), MCA.

"Applicable" requirements are those that by their terms meet the jurisdictional prerequisites and apply to a given action, item or characteristic at the site. "Well suited" requirements are those requirements that are not applicable, but address situations or problems sufficiently similar to those at the site that they are well suited for use at the site. Attainment of both "applicable" requirements and designated "well suited" requirements is equally mandatory under CECRA.

In this preliminary document, DHES has begun to identify applicable state and federal environmental requirements for remedial action at the BN Livingston Site. This document does not attempt to detail the additional requirements that might be well-suited, since the determination of such requirements depends upon the specific action or alternative being considered. The applicable environmental requirements, as well as identification of legal requirements that are "well-suited" for actions at the site, will continue to be developed throughout the feasibility study process as more information becomes available and as alternatives for remediation are better developed and defined. The final determination of applicable or well suited requirements will be made at the time of determination of the remedies to be implemented for the BN Livingston Site. Additionally, pursuant to § 75-10-721(3), MCA, DHES may exempt any portion of a remedial action that is conducted entirely on site from a state or local permit that would, in the absence of the remedial action, be required, if the remedial action is carried out in accordance with the standards established under §§ 75-10-701 through 75-10-724, MCA.

Environmental requirements, criteria and limitations are generally of three types: contaminant-specific, location-specific, and action-specific. Contaminant-specific requirements are those that establish an allowable level or concentration of a hazardous or deleterious substance in the environment or that prescribe a level or method of treatment for a hazardous or deleterious substance. Action-specific requirements are those that are triggered by the performance of a certain activity as part of a particular remedy. Location-specific requirements are those that serve as restrictions on the concentration of a hazardous or deleterious substance or the conduct of activities solely because they are in specific locations or affect specified types of areas.

In the analysis below federal and state contaminant-specific and action-specific requirements are presented together, because they present similar and overlapping requirements. Location-specific requirements, both federal and state, are presented in a separate section.

CECRA defines as cleanup requirements only state and federal environmental requirements, criteria or limitations.¹ Remedial design, implementation, operation and maintenance must also comply with all other applicable laws, both state and federal. Certain of these other laws are included in a final section of this document as a reminder of the need to comply with those requirements. This identification of other laws makes no attempt to be exhaustive.

The description of applicable federal and state requirements which follows includes summaries of the legal requirements which attempt to set out the requirement in a reasonably concise fashion that is useful in evaluating compliance with the requirement. These descriptions are provided to allow the user a basic indication of the requirement without having to refer constantly back to the statute or regulation itself. However, in the event of any inconsistency between the law itself and the summaries provided in this document, the actual requirement is ultimately the requirement as set out in the law, rather than any paraphrase of the law provided here.

1. Requirements under CECRA differ from applicable or relevant and appropriate requirements (ARARs) under CERCLA in that the state shall require cleanup "consistent with" applicable state or federal environmental requirements and may require cleanup consistent with substantive state or federal environmental requirements that are well-suited to site conditions. § 75-10-721(2)(a) and (b), MCA. Thus the substantive vs. administrative analysis that eliminates many requirements under CERCLA applies only to well-suited requirements under the state law. Administrative requirements that are legally applicable to the cleanup are to be included as legal requirements for the cleanup under the state act. This parallels another distinction between the two acts, the fact that the permit exemption under CERCLA is automatic, see 42 U.S.C. § 121(e), but under the state law permits are required unless action is taken to obtain and grant a specific exemption. See § 75-10-721(3), MCA. Therefore, this list of requirements may include both legally applicable administrative requirements and permit requirements.

CONTAMINANT AND ACTION SPECIFIC REQUIREMENTS

I. WATER QUALITY

A. Surface Water

The federal Clean Water Act, 33 U.S.C. §§ 1251 et seq., and the Montana Water Quality Act, §§ 75-5-101 et seq., establish requirements for restoring and maintaining the quality of surface waters. Under these Acts the state has authority to adopt water quality standards designed to protect beneficial uses of each water body and to designate uses for each water body. Montana's regulations classify state waters according to quality, place restrictions on the discharge of pollutants to state waters and prohibit the degradation of state waters.

These Acts control the direct discharge of pollutants to surface waters through a Pollutant Discharge Elimination System. The MPDES program requires permits for direct discharges to surface waters. The permits contain limits based upon either effluent (discharge) standards, or, if they are more stringent, ambient (overall water quality) standards. These standards, including the permit requirements, are applicable to any discharge to surface waters as part of the remedial action at the site, including any point source discharge or any run-off from the site into surface water during remediation. This program is administered by the State of Montana under an EPA delegated program.

Pursuant to these authorities and based upon the criteria established by Montana water quality regulations, Montana has established classification standards for discharges into the Yellowstone River drainage, which includes the BN Livingston site.

ARM 16.20.608(1) (Applicable) provides that the waters of the Yellowstone River drainage down to the Laurel water supply intake, which includes the Livingston area, are classified "B-1" for water use.

The standards for "B-1" classification waters are contained in ARM 16.20.618 (Applicable) of the Montana water quality regulations. These standards place limits on fecal coliform content, dissolved oxygen concentration, pH balance, turbidity, water temperature, sediments, solids, oils, and color.² Concentrations of toxic or deleterious substances which would remain in the water after conventional

2. The B-1 classification standards in ARM 16.20.618 include the following limitations:

1. During periods when the daily maximum water temperature is greater than 60°F, the geometric mean number of organisms in the fecal coliform group must not exceed 200 per 100 milliliters (ml), nor are 10% of the total samples during any 30-day period to exceed 400 fecal coliforms per 100 ml.
2. Dissolved oxygen concentration must not be reduced below 7.0 milligrams (mg) per liter (l).
3. Induced variation of hydrogen ion concentration (pH) within the range of 6.5 to 8.5 must be less than 0.5 pH unit. Natural pH outside this range may not be altered and natural pH above 7.0 must be maintained above 7.0.
4. Temperature variations are specifically limited, depending upon the temperature range of the receiving water. See ARM 16.20.618(2)(e).
5. No increase in naturally occurring concentrations of sediment, settleable solids, oils, or floating solids is allowed which will or is likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, welfare, livestock, wild animals, birds, fish or other wildlife.
6. True color must not be increased more than five units above naturally occurring color.

treatment cannot exceed MCLs,³ and concentrations of toxic or deleterious substances cannot exceed Gold Book levels.⁴

Additional restrictions on any discharge to surface waters are included in:

ARM 16.20.631 (Applicable), which requires that industrial waste⁵ must receive, as a minimum, treatment equivalent to the best practicable control technology currently available (BPCTCA) as defined in 40 CFR Subchapter N and subsequent amendments. Where, as at the BN Livingston facility, none of the Subchapter N industrial categories is applicable, industrial waste must receive a minimum of secondary treatment or equivalent as determined by the department. This section also requires that in designing a disposal system, stream flow dilution requirements must be based on the minimum consecutive 7-day average flow which may be expected to occur on the average of once in 10 years.

ARM 16.20.633 (Applicable), which prohibits discharges containing substances that will:

- (a) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines;
- (b) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter) or globules of grease or other floating materials;
- (c) produce odors, colors or other conditions which create a nuisance or render undesirable tastes to fish flesh or make fish inedible;
- (d) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life;
- (e) create conditions which produce undesirable aquatic life.

ARM 16.20.633 also provides that water, waste, or product holding facilities must be located, constructed, operated and maintained to prevent any discharge, seepage, drainage, infiltration, or flow which may result in pollution of state waters, and a monitoring system may be required to ensure such compliance. No pollutants may be discharged and no activities may be conducted which, either alone or in combination with other wastes or activities, result in the total dissolved gas pressure relative to the water surface exceeding 110 percent of saturation.

ARM 16.20.635 (Applicable), which provides standards for sampling and analysis of water to determine quality.

ARM 16.20.642 (Applicable), which requires that bioassay tolerance concentrations be determined in a specified manner.

3. Maximum contaminant levels are specified in the National Primary Drinking Water Regulations, 40 CFR Part 141, and the National Secondary Drinking Water Regulations, 40 CFR Part 143. The Montana water quality regulations specify the 1986 CFR version of the federal regulations.

4. ARM 16.20.603(10) defines Gold Book levels as "the freshwater acute or chronic levels or the levels for water and fish ingestion that are listed in Update Number Two (5/1/87) of Quality Criteria for Water 1986 (EPA 440/5-86-001)."

5. Section 75-5-103, MCA, defines "Industrial waste" as "any waste substance from the process of business or industry or from the development of any natural resource, together with any sewage that may be present."

ARM 16.20.925 (Applicable), which adopts and incorporates the provisions of 40 C.F.R. Part 125 for criteria and standards for the imposition of technology-based treatment requirements in MPDES permits. These standards are applicable in obtaining a discharge permit for remedial actions at this site. Even if a permit exemption were granted, the substantive requirements of Part 125 are applicable, i.e., for toxic and nonconventional pollutants, treatment must apply the best available technology economically achievable (BAT); for conventional pollutants, application of the best conventional pollutant control technology (BCT) is required. Where effluent limitations are not specified for the particular industry or industrial category at issue, BCT/BAT technology-based treatment requirements are determined on a case by case basis using best professional judgment (BPJ). See 40 CFR § 125.3(a)(2).

The Water Quality Act and regulations also include nondegradation provisions which require that waters which are of higher quality than the applicable classification be maintained at that high quality, and discharges which would degrade that water are prohibited. Montana's standard for nondegradation of water quality is applicable for all constituents for which pertinent portions of the Yellowstone River or other body of water receiving a discharge, e.g., Fleshman Creek, are of higher quality than the B-1 classification standards.

ARM 16.20.701 (Applicable) defines "degradation" and provides that "nonpoint source pollutants [e.g., runoff] from lands where all reasonable land, soil and water managements or conservation practices have been applied are not considered degradation."

ARM 16.20.702 (Applicable) applies nondegradation requirements to any activity of man which would cause a new or increased source of pollution to state waters. This section states when exceptions to nondegradation requirements apply, except that in no event may such degradation affect public health, recreation, safety, welfare, livestock, wild birds, fish and other wildlife or other beneficial uses.

ARM 16.20.703 (Applicable) establishes the substantive nondegradation standard (quality of receiving waters whose quality is higher than established water quality standards is not to be degraded by the discharge of pollutants) and requires that water quality permits incorporate nondegradation standards. This rule also provides that determination of degradation is to ensure that baseline quality of the receiving waters will not be degraded at any flow greater than the 7-day, 10-year low flow of the receiving waters.

B. Pretreatment Standards for Discharges to a POTW

40 CFR Part 403 sets out the federal standards to control pollutants which contact publicly-owned treatment works (POTWs) or which may contaminate sewage sludge. ARM Title 16, Chapter 20, Sub-chapter 14 sets out the state requirements for pretreatment of a discharge to a POTW. If remedial action at the site includes a discharge to a POTW, all of these requirements will be applicable. Because the POTW is off-site, no permit exemption is available, see 75-10-721(3), and both the administrative and substantive requirements specified in these regulations must be met.

There are three categories of limitations for discharges into a POTW. The first is the general standard that applies to all discharges into a POTW. Second, POTWs may issue discharge permits to industrial users to enforce specific limits for a particular facility. Third, EPA has established pretreatment standards for specific

industrial subcategories. All three of these standards may be applicable to a particular wastewater stream. Generally, discharges into a POTW cannot cause pass through or interference with a POTW. "Pass through" means a discharge which exits the POTW causing a violation of the POTW's National Pollutant Discharge Elimination System ("NPDES") permit. "Interference" is a discharge which inhibits or disrupts a POTW's treatment process or operation, causing a violation of the POTW's NPDES permit.

Federal RCRA and the state Hazardous Waste Management rules also require that discharges of hazardous wastes comply with all federal, state and local pretreatment requirements which would be applicable to the waste if it were being discharged into the POTW through a sewer, pipe, or similar conveyance. The RCRA permit-by-rule requirements at 40 CFR § 270.60 and the corresponding state rule at ARM 16.44.121 allow the hazardous waste discharge to be treated as permitted, if the owner or operator of the POTW obtains and complies with an NPDES permit and complies with regulations related to waste identification, manifests, operating records, and reporting. The discharger must take the necessary action to ensure that the POTW operator can comply with these requirements, including providing necessary documentation and performing necessary pretreatment.

Section 75-5-602, MCA, empowers MDHES to require the owner or operator of any point source or of any facility that discharges to a municipal sewage system to which the pretreatment standards apply to keep records, make reports, install, use, and maintain monitoring equipment and to sample effluent using specified monitoring methods at designated locations and intervals.

C. Groundwater

1. Maximum Contaminant Levels

The National Primary and Secondary Drinking Water Standards⁶ (40 CFR Parts 141 and 143), which establish "maximum contaminant levels" (MCLs), are applicable to remedial activities at the site because the aquifer underlying the site is and has been used as a public water supply. Among the primary MCLs specified for contaminants of concern at this site are:

<u>Inorganic Chemicals</u> ⁷	<u>MCL (mg/l)</u>
Arsenic	0.05
Barium ⁸	1.
Cadmium ⁹	0.010

6. EPA has granted to the State of Montana primacy in enforcement of the Safe Drinking Water Act. Thus the law commonly enforced in Montana is the state law, rather than the federal law. The state regulations under the state Public Water Supply Act, §§ 75-6-101 et seq., MCA, substantially parallel the federal law. The MCLs are currently identical, see ARM 16.20.203, and will remain so until certain federal rule changes become effective on July 1, 1992, and January 1, 1993. The state requirements are not separately identified, since they are not more stringent. This note is provided only to clarify the primacy issue, i.e., which law is commonly enforced in Montana.

7. See 40 CFR § 141.11.

8. Effective January 1, 1993, the MCL for Barium will be revised to 2 mg/l. See 56 Fed. Reg. 30280 (July 1, 1991), to be codified at 40 CFR § 141.62.

9. Effective July 30, 1992, the MCL for Cadmium will be revised to 0.005 mg/l. See 56 Fed. Reg. 3594 (January 30, 1991), to be codified at 40 CFR § 141.62.

Chromium ¹⁰	0.05
Lead	0.05
Mercury	0.002
Nitrate (as N) ¹¹	10
Selenium ¹²	0.01
Silver	0.05
<u>Organic Chemicals¹³</u>	<u>MCL (mg/l)</u>
Total trihalomethanes	0.10
Benzene	0.005
Vinyl Chloride	0.002
Trichloroethylene	0.005
1,1-Dichloroethylene	0.007
para-Dichlorobenzene	0.075

In addition, certain secondary MCLs may be applicable to the site, including for example a limit for chlorides at 250 mg/l. 40 CFR § 143.3.

Additional MCLs have been promulgated and will become effective July 30, 1992. These MCLs will also be applicable to the cleanup of the site, since any groundwater remedy will not be complete until after July 30, 1992. These new MCLs include, inter alia:

<u>Organic Chemicals</u>	<u>MCL (mg/l)</u>
cis-1,2-Dichloroethylene	0.07
Ethylbenzene	0.7
Monochlorobenzene	0.1
o-Dichlorobenzene	0.6
Tetrachloroethylene	0.005
Toluene	1.
trans-1,2-Dichloroethylene	0.1
Xylenes (total)	10

In addition, 40 CFR § 141.62 establishes an MCL for asbestos at 7 million fibers/liter where fibers are longer than 10 micrometers. This MCL will become effective July 30, 1992, and will be applicable to cleanup of water at the site.

2. Montana Groundwater Pollution Control System

ARM 16.20.1002 (Applicable) classifies groundwater into Classes I through IV based on the present and future most beneficial uses of the groundwater, and states that groundwater is to be classified according to actual quality or actual use,

10. Effective July 30, 1992, the MCL for Chromium will be revised to 0.1 mg/l. See 56 Fed. Reg. 3594 (January 30, 1991), to be codified at 40 CFR § 141.62.

11. Effective July 30, 1992, the following MCLs will be included as well: Nitrite, 1 mg/l (as Nitrogen); Total Nitrate and Nitrite, 10 mg/l (as Nitrogen). See 56 Fed. Reg. 3594 (January 30, 1991), to be codified at 40 CFR § 141.62.

12. Effective July 30, 1992, the MCL for Selenium will be revised to 0.05 mg/l. See 56 Fed. Reg. 3594 (January 30, 1991), to be codified at 40 CFR § 141.62.

13. See 40 CFR § 141.61 (§ 141.12 for trihalomethanes).

whichever places the groundwater in a higher class. Class I is the highest class; class IV is the lowest. Based upon its specific conductance, the bulk of the groundwater at the site should be considered Class I groundwater.¹⁴ Moreover, the actual use of the aquifer underlying the site and affected by the plume of contamination was as a drinking water source in 1982.¹⁵

ARM 16.20.1003 (Applicable) establishes the groundwater quality standards applicable with respect to each groundwater classification. Concentrations of dissolved substances in Class I or II groundwater or any groundwater which is used for drinking water supplies may not exceed Montana MCL values for drinking water. Concentrations of other dissolved or suspended substances must not exceed levels that render the waters harmful, detrimental or injurious to public health. Maximum allowable concentration of these substances also must not exceed acute or chronic problem levels that would adversely affect existing or designated beneficial uses of groundwater of that classification.

ARM 16.20.1011 (Applicable) provides that any groundwater whose existing quality is higher than the standard for its classification must be maintained at that high quality unless the Board of Health is satisfied that a change is justifiable for economic or social development and will not preclude present or anticipated use of such waters. Thus for any constituent or parameter for which the groundwater at the site is of higher quality than the applicable classification, discharges to the groundwater at concentrations higher than the actual quality for that constituent or parameter are not allowed without waiver by the Board of Health.

3. RCRA Groundwater Protection Standards

Under 40 C.F.R. Part 264, Subpart F¹⁶, concentration limits are set for hazardous constituents in groundwater. These standards are applicable to all alternatives which involve the storage, treatment or disposal of hazardous wastes in a solid waste management unit (i.e., a surface impoundment, waste pile, land treatment unit, or landfill). The limits specified for groundwater protection in this section are the same as the MCLs identified above for the covered contaminants of concern at the site.

The regulations at 40 CFR 264, Subpart F,¹⁷ also establish monitoring requirements for RCRA-regulated solid waste management units (i.e., waste piles, surface impoundments, land treatment units, and landfills). Subpart F provides for three general types of groundwater monitoring: detection monitoring (40 CFR § 264.98); compliance monitoring (40 CFR § 264.99); and corrective action monitoring (40 CFR § 264.100). Monitoring wells must be cased according to § 264.97(c).

14. ARM 16.20.1002 provides that Class I groundwaters have a specific conductance of less than 1000 micromhos/cm at 25° C; Class II groundwaters: 1000 to 2500; Class III groundwaters: 2500 to 15,000; and Class IV groundwaters: over 15,000. The groundwater at the BN Livingston site ranges from 253 to 1121 micromhos/cm, with the arithmetic mean of samples at 602.7 micromhos/cm. See Livingston Rail Yard Draft Remedial Investigation Report, Table 5.4 (Envirocon, September 12, 1991).

15. City of Livingston public water supply wells have had to be closed and relocated as the plume of contamination from the site has expanded.

16. The State of Montana implements an authorized RCRA program which includes the groundwater protection standards of 40 CFR Part 264, Subpart F, (1990) as incorporated by reference in ARM 16.44.702.

17. These regulations are incorporated by reference and are implemented by DHES as part of Montana's authorized RCRA program. See ARM 16.44.702.

Monitoring is required during the active life of a hazardous waste management unit. At closure, if all hazardous waste, waste residue, and contaminated subsoil is removed, no monitoring is required. If hazardous waste remains, the monitoring requirements continue during the 40 CFR § 264.117 closure period.

4. Underground Injection Control Program¹⁸

The underground injection control (UIC) program requirements found at 40 CFR Part 144 are applicable to remedies that involve reinjection of pumped and treated groundwater. The program divides wells into five classes for permitting purposes. Class I wells are used to inject hazardous waste or fluids beneath the lower-most formation containing, within one-quarter mile, an underground source of drinking water. Class IV wells are used to dispose of hazardous waste into or above a formation which contains, within one-quarter mile of the well, an underground source of drinking water. Class IV wells are generally prohibited, except for reinjection of treated groundwater into the same formation from which it was withdrawn, as part of a CERCLA cleanup or RCRA corrective action. Class II and III wells deal with mining and oil and gas production and so are inapplicable to any remedial action at the site. Class V wells constitute all other injection wells. There is no regulation of Class V wells.

The aquifer underlying the site is within one-quarter mile of an underground source of drinking water, so any well injecting above the aquifer would be a Class IV well. Generally, the construction, operation, and maintenance of a Class IV well is prohibited by 40 CFR § 144.13. However, wells used to inject contaminated ground water that has been treated and is being reinjected into the same formation from which it was drawn are not prohibited if such injection is approved by EPA pursuant to provisions for cleanup of releases under CERCLA, or pursuant to requirements and provisions of RCRA.¹⁹ No increase in the amount of hazardous waste or change in the type of hazardous waste injected into a Class IV well except as approved by EPA as part of a CERCLA cleanup or pursuant to the requirements and provisions of RCRA. 40 CFR § 144.23 specifies requirements for closing a Class IV well, including that the well be plugged or otherwise closed in a manner acceptable to the EPA Regional Administrator.

5. Montana Groundwater Act

Section 85-2-505, MCA, (Applicable) precludes the wasting of groundwater. Any well producing waters that contaminate other waters must be plugged or capped, and wells must be constructed and maintained so as to prevent waste, contamination, or pollution of groundwater.

II. WASTE MANAGEMENT

A. Solid Waste Regulation

Most of the applicable solid waste management requirements are location related requirements. These are discussed in the Location Specific Requirements section of this document.

18. The UIC program for the State of Montana is administered by EPA. See 40 CFR § 147.1351.

19. However, 40 CFR § 148.10 expressly prohibits the underground injection of F001 - F005 spent solvent waste, unless the waste is a solvent-water mixture or solvent-containing sludge containing less than 1 percent total spent solvent constituents, as identified in that section.

The Solid Waste Management Act, §§ 75-10-201 et seq., MCA, was significantly revised in the 1991 Montana Legislature, and the regulations under that Act are currently being revised. Some of these regulations may be applicable to actions at the site and will be identified as they are promulgated.

B. Hazardous Waste Regulation

The Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901 et seq., and the Montana Hazardous Waste and Underground Storage Tank Act, §§ 75-10-401 et seq., MCA, and regulations under these acts establish a regulatory structure for the generation, transportation, treatment, storage and disposal of hazardous wastes. Many of these requirements are applicable to substances and actions at the site.

Wastes may be designated as hazardous by either of two methods: listing or demonstration of a hazardous characteristic. Listed wastes are the specific types of wastes determined by EPA to be hazardous as identified in 40 CFR Part 261, Subpart D (40 CFR §§ 261.30 - 261.33).²⁰ Listed wastes are designated hazardous by virtue of their origin or source, and must be managed as hazardous wastes regardless of the concentration of hazardous constituents. Characteristic wastes are those that by virtue of concentrations of hazardous constituents demonstrate the characteristic of ignitability, corrosivity, reactivity or toxicity, as described at 40 CFR Part 261, Subpart C (40 CFR §§ 261.20 - 261.24) and ARM 16.44.320-16.44.324.

Whether there are characteristic hazardous wastes at the site must be determined by appropriate testing of the waste if there is an indication, based on the nature of the material, that it might demonstrate a characteristic. However, the site does contain listed hazardous wastes. For example, the chlorinated solvents that contaminate the various media and wastes at the site are listed hazardous wastes.²¹

20. These listings are incorporated and enforceable as part of Montana's authorized RCRA program. See ARM §§ 16.44.330 - 16.44.332. The Montana regulations cover those wastes listed in the 1990 version of the CFR. See ARM 16.44.102(5). Any wastes subsequently listed by EPA and not yet covered by the state authorized program are covered by the federal RCRA regulations.

21. In promulgating the listing for these spent solvent wastes, EPA indicated that where the regulatory status of a spent solvent mixture containing listed solvents is questionable, the waste is presumed to be the listed waste, unless the generator can prove that the virgin solvent mixture contained less than ten percent total listed solvents. This presumption is based on data which indicate that solvent mixtures used in commerce typically contain greater than ten percent total solvents. See 50 Fed. Reg. 53316, footnote 1. The ten percent concentration was chosen for the regulation because it captures the majority of solvent mixtures used in commerce simply because it represents a level well below the minimum concentration that is needed to impart the characteristics for which solvents are used. 50 Fed. Reg. 53317.

The known uses of the solvents at the site, e.g., degreasing of locomotives, motors and parts, would indicate, under the presumption in the EPA listing, that the solvent mixtures used at this site are the listed wastes. There has been no showing of any kind that the solvents or solvent mixtures used at the site were at concentrations less than ten percent, and thus the solvent wastes identified at the site must be presumed to be the listed hazardous wastes.

EPA guidance for determining ARARs under the NCP provides that the agency determining ARARs has some discretion in determining whether a substance at the site is a listed hazardous waste. The CERCLA Compliance With Other Laws Manual: Interim Final (August 1988), p. 2-5, states:

To determine whether a waste is a listed waste under RCRA, it is often necessary to know the source. However, at many Superfund sites no information exists on the source of the wastes. The lead agency should use available site information, manifests, storage records, and vouchers in an effort to ascertain the nature of these contaminants. When this documentation is not available, the lead agency may assume that the wastes are not listed RCRA hazardous wastes, unless further analysis or information becomes available which

See 40 CFR § 261.31 (Haz. Waste No's F001 and F002) and ARM 16.44.331. Thus any actions which involve generation, transportation, treatment (which includes recovery), storage, or disposal of these solvents, including any mixture of these solvents and another solid waste, are subject to the relevant hazardous waste management regulations.²²

allows the lead agency to determine that the wastes are listed RCRA hazardous wastes. If the lead agency is unable to make an affirmative determination that the wastes are RCRA hazardous wastes, RCRA requirements would not be applicable to CERCLA actions, but may be relevant and appropriate if the CERCLA action involves treatment, storage or disposal and if the wastes are similar or identical to RCRA hazardous waste.

Similarly, Superfund LDR Guide #5, Determining When Land Disposal Restrictions Are Applicable to CERCLA Response Actions (OSWER Dir. No. 9347.3-05FS, July 1989) states:

Site managers are not required to presume that a CERCLA hazardous substance is a RCRA hazardous waste unless there is affirmative evidence to support such a finding. Site managers, therefore, should use "reasonable efforts" to determine whether a substance is a RCRA listed or characteristic waste. (Current data collection efforts during CERCLA removal and remedial site investigations should be sufficient for this purpose.) For listed hazardous wastes, if manifests or labels are not available, this evaluation likely will require fairly specific information about the waste (e.g., source, prior use, process type) that is "reasonably ascertainable" within the scope of a Superfund investigation. Such information may be obtained from facility business records or from an examination of the processes used at the facility.

In the instant case, general information regarding the use and handling of solvents and spent solvents at the site is known, indicating the source of the solvent wastes at the site. Based on that information, these wastes fall within the hazardous waste (F001 and F002) listing.

22. The generator of the waste has asserted that certain sludges at the site are exempt from the definition of hazardous waste. For example, small amounts of solvent carried over on the metal parts rinsed in caustic rinsewater do not render the caustic rinsewater a listed waste mixture. See letter from Matthew A. Straus, Chief, Waste Characterization Branch, USEPA, to William S. Harer, dated August 25, 1987. This caustic rinsewater was commonly disposed down the shop drains at the site, and these solvent residuals could appear in the sludge derived from treatment of those wastes. Thus certain concentrations of the spent solvents and their constituents could appear in the sludges without being deemed a mixture of the listed hazardous wastes and other wastes. Similarly, 40 CFR § 261.3(a)(2)(iv) exempts certain mixtures from the definition of hazardous waste if the generator can demonstrate that the mixture consists of (1) wastewater the discharge of which is subject to regulation under the Clean Water Act and (2) specified listed solvents, provided that the concentration of solvents in the wastewater stream entering the treatment system was below specified limits.

If, based on such a demonstration or another exemption from RCRA requirements, the sludges were not deemed RCRA hazardous wastes, the following requirements should be considered "well suited" requirements with which handling and disposal of the sludges must comply:

1. Treatment of the wastes, if necessary, to levels of contaminants allowed to be land disposed as specified in 40 CFR Part 268, Subpart D, for F001-F005 spent solvents; and
2. Ultimate disposal of the wastes at a facility operating in compliance with RCRA sections 3004 and 3005, 42 U.S.C. §§ 6924 and 6925, in a unit complying, at a minimum, with the following standards:
 - a) two or more liners with a leachate collection system above and between the liners in accordance with the requirements of 40 CFR § 264.301;
 - b) a run-on and run-off control system in accordance with the requirements of 40 CFR § 264.301(f)-(h);
 - c) assurance of a proper cover upon closure of the unit or facility in accordance with the requirements of 40 CFR § 264.310; and
 - d) a groundwater monitoring system installed and maintained in accordance with the requirements of 40 CFR Subpart F.

In addition, compliance with these requirements of RCRA would maintain consistency with the NCP and CERCLA. CERCLA requires that transfer of any hazardous substance or pollutant or contaminant offsite, shall be only to a facility which is operating in compliance with section 3004 and 3005 of the Solid Waste Disposal Act (RCRA) and all applicable state requirements. 42 U.S.C. § 9621(d)(3). Such a transfer may occur under CERCLA only if EPA determines that the receiving unit is not releasing any hazardous wastes and all releases from other units at the facility are being controlled by an appropriate corrective action program. *Id.*

The structure of the federal and the state hazardous waste management regulations focuses on both specific types of waste management units and on certain management practices with respect to hazardous wastes. An outline of these regulatory requirements is set out below. The applicability of these requirements at the site depends upon the specific activities to be taken with respect to the hazardous wastes at the site or upon the type of waste management units existing at the site. Since the full range of possible alternative remedies at the site has not yet been developed, this outline gives just a general overview of these requirements. As specific alternatives are developed and evaluated, more specific analysis of the applicable or well suited requirements can be provided.

1. Standards for Generators of Hazardous Waste

The regulations at ARM 16.44.401-425, substantially equivalent to RCRA regulations at 40 CFR Part 262, establish standards that apply to generators of hazardous waste. These standards include requirements for obtaining an EPA identification number and maintaining certain records and filing certain reports, as well as requirements relating to transportation of hazardous wastes off site such as manifesting, packaging, and adequately identifying the wastes as hazardous.

2. Standards Applicable to Transporters of Hazardous Waste

The regulations at ARM 16.44.503-528, substantially equivalent to RCRA regulations at 40 CFR Part 263, establish standards that apply to persons that transport hazardous waste within the United States. If hazardous waste is transported on a rail-line or public highway on-site, or if transportation occurs off-site, these regulations will be applicable.

The Hazardous Materials Transportation Act, 49 USC §§ 1801-1813, as implemented by the Hazardous Materials Transportation Regulations, 49 CFR Parts 10, 171-177, also regulates the transportation of hazardous materials. The regulations apply to any alternatives involving the transport of hazardous waste off-site, on public highways on-site, or by rail line.

3. Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

a. Releases from Solid Waste Management Units

The regulations at 40 CFR 264, Subpart F,²³ establish requirements for groundwater protection for RCRA-regulated solid waste management units (i.e., waste piles, surface impoundments, land treatment units, and landfills). These regulations are discussed in the groundwater section of this document above.

Note that any sludges which have been mixed with spent solvents that were directly disposed into sludge pits would not be exempt from the definition of hazardous waste under the exemptions discussed above. A high concentration of solvents in the sludge would be one present indicator that such mixing occurred with respect to a certain portion of the sludge. Thus any sludges with very high concentrations of the solvent constituents should not be regarded as exempt from the hazardous waste requirements.

23. These regulations are incorporated by reference and are implemented by DHES as part of Montana's authorized RCRA program. See ARM 16.44.702.

b. Closure and Post-Closure Monitoring and Maintenance of Waste Management or Disposal Facilities

40 CFR Part 264, Subpart G,²⁴ establishes that hazardous waste management facilities must be closed in such a manner as to (a) minimize the need for further maintenance and (b) control, minimize or eliminate, to the extent necessary to protect public health and the environment, post-closure escape of hazardous wastes, hazardous constituents, leachate, contaminated runoff or hazardous waste decomposition products to the ground or surface waters or to the atmosphere.

Facilities requiring post-closure care must undertake appropriate monitoring and maintenance actions, control public access, and control post-closure use of the property to ensure that the integrity of the final cover, liner, or containment system is not disturbed. 40 CFR § 264.117. In addition, all contaminated equipment, structures and soil must be properly disposed of or decontaminated unless exempt. 40 CFR § 264.114. A survey plat should be submitted to the local zoning authority and to the EPA Regional Administrator indicating the location and dimensions of landfill cells or other hazardous waste disposal units with respect to permanently surveyed benchmarks. 40 CFR § 264.116. 40 CFR § 264.228(a) requires that at closure, free liquids must be removed or solidified, the wastes stabilized, and the waste management unit covered.

c. Waste Containers and Tanks

40 CFR Part 264, Subparts I, J and K,²⁵ apply to owners and operators of facilities that store hazardous waste in containers, store or treat hazardous waste in tanks, or treat, store or dispose of hazardous waste in surface impoundments, respectively.

d. Waste Piles

40 CFR Part 264, Subpart L,²⁶ applies to owners and operators of facilities that store or treat hazardous waste in piles.²⁷ The regulations require the use of run-on and run-off control systems and collection and holding systems to prevent the release of contaminants from waste piles.

e. Land Treatment

The requirements of 40 CFR Part 264, Subpart M,²⁸ regulate the management of "land treatment units"²⁹ that treat or dispose of hazardous waste; these requirements are applicable for any land treatment units established at the site.

24. These regulations are incorporated by reference and are implemented by DHES as part of Montana's authorized RCRA program. See ARM 16.44.702.

25. These regulations are incorporated by reference and are implemented by DHES as part of Montana's authorized RCRA program. See ARM 16.44.702.

26. These regulations are incorporated by reference and are implemented by DHES as part of Montana's authorized RCRA program. See ARM 16.44.702.

27. "Pile" means any non-containerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage. 40 CFR § 260.10.

28. These regulations are incorporated by reference and are implemented by DHES as part of Montana's authorized RCRA program. See ARM 16.44.702.

29. Land treatment occurs when hazardous waste is applied onto or incorporated into the soil surface.

The owner or operator of a land treatment unit must design treatment so that hazardous constituents placed in the treatment zone are degraded, transformed, or immobilized within the treatment zone. "Hazardous constituents" are those identified in Appendix VIII of 40 CFR Part 261 that are reasonably expected to be in, or derived from, waste placed in or on the treatment zone. Design measures and operating practices must be set up to maximize the success of degradation, transformation, and immobilization processes. The treatment zone is the portion of the unsaturated zone below and including the land surface in which the owner or operator intends to maintain the conditions necessary for effective degradation, transformation, or immobilization of hazardous constituents. The maximum depth of the treatment zone must be no more than 1.5 meters (five feet) from the initial soil surface; and more than one meter (three feet) above the seasonal high water table.

Subpart M also requires the construction and maintenance of control features that prevent the run-off of hazardous constituents and the run-on of water to the treatment unit. The unit must also be inspected weekly and after storms for deterioration, malfunctions, improper operation of run-on and run-off control systems, and improper functioning of wind dispersal control measures.

An unsaturated zone monitoring program must be established to monitor soil and soil-pore liquid to determine whether hazardous constituents migrate out of the treatment zone. Specifications related to the monitoring program are contained in section 264.278.

f. Landfills

40 CFR Part 264, Subpart N,³⁰ applies to entities that dispose of hazardous waste in landfills.³¹ The regulations specify appropriate liner systems and leachate collection systems for landfills, run-on and run-off management systems, and wind dispersal controls for landfills. These regulations set forth specific requirements for landfill monitoring and inspection, surveying and recordkeeping, and closure and post-closure care.

g. Incineration

The regulations at 40 CFR §§ 264.340-351 and 40 CFR Part 265, Subpart O,³² would be applicable for any alternative involving on-site incineration of hazardous waste. The standards require an owner or operator of a hazardous waste incinerator to conduct a waste analysis in conjunction with obtaining a treatment, disposal, and storage permit for the incinerator. A permit designates one or more Principal Organic Hazardous Constituents (POHCs) from those constituents listed in 40 CFR Part 261, Appendix VIII. A POHC designation is based on the degree of difficulty of incineration of the organic constituents in the waste feed from trial burns. Organic constituents that represent the greatest degree of difficulty are most

30. These regulations are incorporated by reference and are implemented by DHES as part of Montana's authorized RCRA program. See ARM 16.44.702.

31. "Landfill" means a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a pile, a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, an underground mine, or a cave. 40 CFR § 260.10.

32. These regulations are incorporated by reference and are implemented by DHES as part of Montana's authorized RCRA program. See ARM 16.44.702 and 16.44.609 (Interim status).

likely to be designated a POHC. Incineration of POHCs designated in the permit must achieve a 99.99% destruction and removal efficiency. 40 CFR § 264.343(a).

An incinerator burning hazardous waste and producing stack emissions of more than 1.8 kilograms per hour (4 pounds per hour) of hydrogen chloride (HCl) must control HCl emissions such that the rate of emission is no greater than the larger of either 1.8 kilograms per hour or 1% of the HCl in the stack gas prior to entering any pollution control equipment. 40 CFR § 264.343(b). A permitted incinerator must not emit particulate matter in excess of 180 milligrams per dry standard cubic meter. 40 CFR § 264.343(c). The owner or operator must monitor combustion temperature, waste feed rate, CO emissions, and combustion gas velocity. The incinerator must be visually inspected daily, and the emergency waste feed cutoff system and associated alarms must be tested weekly. At closure, all hazardous waste residues must be removed from the incinerator site.

4. RCRA Land Disposal Restrictions

A variety of wastes at the BN Livingston Site are subject to the RCRA Land Disposal Restrictions (LDRs).³³ See 40 CFR § 268. Land disposal restrictions typically set concentration levels or treatment standards that hazardous wastes must meet before they can be land disposed. These treatment standards typically represent best demonstrated available treatment technology (BDAT) for hazardous wastes.

The solvent wastes listed as EPA Hazardous Waste Nos. F001, F002, F003, F004, and F005 are covered by the LDRs. A graduated scheme of restrictions has been placed on these wastes, depending on the time at which the land disposal occurs. A number of exemptions from the land disposal restriction which were available from 1986 to 1988 for these wastes are no longer available. After November 8, 1990, even solvent wastes which are contaminated soil and debris resulting from a CERCLA or RCRA cleanup and the residues from treating these wastes are subject to the restrictions unless a specific exemption has been granted.

A restricted waste such as the F001-5 spent solvent wastes may be land disposed only if an extract of the waste or of the treatment residue of the waste does not exceed the treatment levels or standards of Subpart D of 40 CFR § 268. For these solvent wastes, the concentration levels which must be achieved are those shown in Table CCWE, 40 CFR § 268.41 for the given constituents. Unlike most of the treatment standards for wastes containing organic constituents, the standards for the F001-F005 wastes are expressed as TCLP concentrations. While these concentration levels are set by BDAT, any treatment technology may be used if it will achieve the specified concentration levels and is not otherwise prohibited. See Superfund LDR Guide #3, Treatment Standards and Minimum Technology Requirements Under Land Disposal Restrictions, OSWER Dir. No. 9347.3-03FS (July 1989).

The option of using a treatability variance may be available when EPA has set a treatment standard as a concentration level, but because a waste differs significantly from the waste used to set the standard, the promulgated treatment

33. If a listed waste for which treatment standards have been set is actively managed and "placement" occurs, the RCRA land disposal restrictions set forth at 40 CFR Part 268 are applicable. Placement does not occur when hazardous waste is consolidated within a unit, capped in place, or treated in situ. CERCLA Compliance with Other Laws Manual 2-16, 2-17 (August 1988).

standard cannot be met or the BDAT technology is inappropriate for that waste. Under a treatability variance, EPA approves an alternate treatment standard that must be met before that waste can be land disposed. See 40 CFR § 268.44. Similarly, completing a no migration petition under 40 CFR § 268.6, may be a way of resolving compliance with LDRs where effective treatment of a hazardous waste is not practicable.

C. Petroleum Hydrocarbon Management and Recovery

1. Underground Storage Tank Regulations

If in the process of any soil removal or other activity at the site, underground storage tanks are encountered and have to be removed or replaced, the following requirements would be applicable.

ARM 16.45.201 (Applicable) specifies the standards for design, construction and installation of new underground storage tanks.

ARM 16.45.701 through 16.45.705 (Applicable) specify the requirements for closure, removal or change in service of an underground storage tank, including assessing the site for possible releases (16.45.703).

ARM 16.45.1216 (Applicable) provides the requirements for issuance of a permit for closure, removal or installation of an underground storage tank. Installation or closure of a tank must satisfy the rules of the department and the state fire marshal, must satisfy the rules governing disposal of the tanks and tank contents, and must be conducted in such a place and manner as to protect the public's health, welfare and safety and the environment.

2. Free Product (Hydrocarbon) Recovery

Federal regulations regarding underground storage tanks provide that where investigations in connection with leaking underground storage tanks reveal the presence of free product, owners and operators must remove free product to the maximum extent practicable as determined by the implementing agency. 40 CFR § 280.64. This regulation requires that the free product removal be conducted in a manner that minimizes the spread of contamination into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges or disposes of recovery byproducts in compliance with applicable local, State and Federal regulations. Abatement of free product migration is a minimum objective for the design of the free product removal system. In addition, any flammable products must be handled in a safe and competent manner to prevent fires or explosions. The Montana regulations regarding underground storage tanks include similar requirements at ARM 16.45.602(3). (While these regulations apply to free product loss resulting from leaking underground storage tanks, the requirements are also well suited to recovery of free product spilled or otherwise lost to the ground as a result of management practices.)

III. AIR QUALITY

A. Ambient Air Quality Standards

Under the federal Clean Air Act, 42 U.S.C. §§7401-7671q, the Administrator of the EPA is authorized and directed to promulgate national ambient air quality standards

for specific air pollutants. See 42 U.S.C. § 7409. States are required to develop plans to implement, maintain and enforce such standards in their jurisdictions. 42 U.S.C. § 7410. Montana has adopted ambient air quality standards in ARM 16.8.801 et seq.. The State standards are enforceable under State law and, to the extent the State standards are equivalent to the federal standards and are part of the EPA-approved State Implementation Plan, the State standards are also federally enforceable.³⁴

The following ambient air quality standards are applicable at the BN Livingston Site:

ARM 16.8.815 (Applicable). Ambient air quality standard for lead. Lead concentrations in the ambient air shall not exceed the following 90-day average: 1.5 micrograms Pb per cubic meter of air.

ARM 16.8.817 (Applicable). Ambient air quality standard for ozone. No person shall cause or contribute to concentrations of ozone in the ambient air exceeding: 0.10 ppm 1-hour average.

ARM 16.8.818 (Applicable). Ambient air quality standard for settled particulate matter. Particulate matter concentrations in the ambient air shall not exceed the following 30-day average: 10 grams per square meter.

ARM 16.8.821 (Applicable). Ambient air quality standards for PM-10. PM-10 concentrations in the ambient air shall not exceed the following standards: 150 micrograms/ cubic meter of air, 24-hour average; and 50 micrograms/cubic meter of air, expected annual average.

Each of the ambient air quality standards set forth above includes in its terms specific requirements and methodologies for monitoring and determining levels. Such requirements are also applicable requirements. In addition, ARM 16.8.807 and 16.8.809, Ambient Air Monitoring; Methods and Data, respectively (Applicable), require that all ambient air monitoring, sampling and data collection, recording, analysis and transmittal shall be in compliance with the Montana Quality Assurance Manual except when more stringent requirements are determined by DHES to be necessary.

B. Emission Standards

Montana has promulgated standards to regulate emissions of certain contaminants into the air. See ARM 16.8.1401 et seq. The state emission standards are enforceable under the Montana Clean Air Act, §§ 75-2-101 et seq., MCA.

The following air emission standards are applicable at the site:

ARM 16.8.1401 (Applicable). Airborne Particulate Matter. Emissions of airborne particulate matter from any stationary source shall not exhibit an opacity of 20 percent or greater, averaged over six consecutive minutes. This standard applies to the production, handling, transportation, or storage of any material; to the use of streets, roads, or parking lots; and to construction or demolition projects.

34. The ambient standards for lead and PM-10 (ARM §§ 16.8.815 and 821) are enforceable under both State and federal law. The ambient standards for ozone and settled particulate matter (ARM §§ 16.8.817 and 818) are enforceable under State law.

ARM 16.8.1404 (Applicable). Visible Air Contaminants. No source may discharge emissions into the atmosphere that exhibit an opacity of 20 percent or greater, averaged over six consecutive minutes. This standard is limited to point sources, but excludes wood waste burners, incinerators, and motor vehicles.

ARM 16.8.1425 (Applicable or Well-Suited). Hydrocarbon Emissions -- Petroleum Products. This section requires vapor loss control for the treatment, storage and handling of petroleum products, and prescribes specific vapor control techniques for certain petroleum product storage tanks and oil-effluent water separators. The section may be applicable to the diesel recovery process at the site. The section may also be well-suited to require the capture and processing of petroleum hydrocarbon vapors at the site to prevent their emission into the atmosphere.

ARM 16.8.1427 (Applicable). Odors. If a business or other activity will create odors, those odors must be controlled, and no business or activity may cause a public nuisance.

C. State Air Quality Permits³⁵

ARM 16.8.1101 et seq. require that permits be obtained for the construction, installation, alteration, or use of specified air contaminant sources. If the cleanup at the site involves or results in a source or stack having the potential to emit more than 25 tons per year of any contaminant, or 5 tons or more per year of lead, these rules may be applicable. If not applicable, these rules might be well-suited in some instances to require contaminant sources to use best available control technology (BACT) or to meet lowest achievable emission rates (LAER), as appropriate.

35. Prevention of Significant Deterioration. As required by the federal Clean Air Act, Montana has adopted rules to prevent significant deterioration of air quality in designated regions. See 42 USC § 7471; ARM Title 16, chapter 8, subchapter 9. The State's PSD rules identify maximum allowable increases of specified contaminants over baseline concentrations, and incorporate state and federal rules concerning ambient air quality, new source performance standards, and national emission standards for hazardous air pollutants. The PSD rules are enforced by means of permit requirements for "major stationary sources", which include any source with the potential to emit 250 tons per year or more of a regulated air pollutant, as well as petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels which emit or have the potential to emit 100 tons per year or more of any pollutant subject to regulation under the Montana Clean Air Act. ARM 16.8.921(22). If any remedial action at the BN Livingston Facility met the definition of a "major stationary source," the PSD permit process and requirements would be applicable. The area around the BN Livingston facility is designated as Class II. ARM 16.8.923.

New Source Performance Standards (NSPS). The federal Clean Air Act establishes a program to set standards of performance for specified new sources of air pollution. 42 USC § 7411. Implementation and enforcement of this program in Montana has been delegated to the State. Federal NSPS regulations at 40 CFR Part 60 are incorporated by reference by ARM 16.8.1423. Cleanup at the BN Livingston Site probably will not result in the creation of a source specifically regulated under the NSPS rules. However, some of the standards and technologies contained in the NSPS rules may provide guidelines that would be well-suited to conditions or actions at the site. The following subparts of 40 CFR Part 60 may provide useful reference:

Subparts K, Ka, and Kb setting out SOPs for Storage Vessels for Petroleum Liquids (or Volatile Organic Liquid Storage Vessels) constructed during specified periods;

Subpart XX, Standards of Performance for Bulk Gasoline Terminals;

Subpart GGG, Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries;

Subpart IIII, Standards of Performance for Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry Air Oxidation Unit Processes (provides, for example, that in a vent stream from an air oxidation reactor the operator must either reduce total organic compound emissions by 98 weight-percent or to a TOC concentration of 20 ppmv on a dry basis, whichever is less stringent (other alternative compliance measures are included) 40 CFR § 60.612(a);

Subpart QQQ, Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems.

ARM 16.8.1102. Permit Requirement -- Exclusions. A permit from the Department or the Board is required for the construction, installation, alteration, or use of specified air contaminant sources. With listed exceptions, the rule applies to sources or stacks having the potential to emit more than 25 tons per year of any contaminant or 5 tons or more per year of lead.

ARM 16.8.1103. Emission Control Requirements. The rule requires sources for which air quality permits are required to use best available control technology (BACT) or to meet the lowest achievable emission rate (LAER), as applicable.

D. National Emission Standards for Hazardous Air Pollutants (NESHAPS)

The federal Clean Air Act requires the EPA to set emission standards for hazardous air pollutants. 42 USC § 7412. Implementation and enforcement of these standards in Montana has been delegated to the State. See 40 CFR § 61.04(b)(BB). Federal standards for hazardous air pollutants (NESHAPS) at 40 CFR Part 61, are incorporated by reference by ARM 16.8.1424. The NESHAPS for asbestos are applicable to the BN Livingston Site and are discussed in the Asbestos section below.

In 1990, Congress directed EPA to set standards for 189 additional specified air contaminants. The list of additional contaminants specified by Congress includes the following substances present at the BN Livingston Site:

- Benzene
- Toluene
- Xylene
- Tetrachloroethylene (Perchloroethylene)
- Trichloroethylene
- Methylene Chloride (Dichloromethane)

EPA is required to begin promulgating standards for the 189 additional contaminants starting in November of 1992. As standards are promulgated for contaminants present at the Site, they will become applicable to the cleanup activity.

E. Other Air Quality Restrictions and Requirements

ARM 16.8.1302. Prohibited open burning. Open burning of numerous specific materials, including but not limited to oil and petroleum products and hazardous wastes, is prohibited.

In addition to the Clean Air Act requirements set out above, RCRA regulations set out certain air quality standards governing emissions resulting from the handling of hazardous wastes or use of underground storage tanks, including the following.

Regulations governing emissions from incineration of hazardous wastes are set out at 40 CFR Part 264, Subpart O, as incorporated into the state Hazardous Waste Management regulations. See ARM 16.44.702. These requirements are discussed in the Hazardous Waste section above.

Air emission standards for facilities with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping

operations managing hazardous wastes with organic concentrations of at least 10 ppmw are set out at 40 CFR Part 264, Subpart AA (40 CFR §§ 264.1030-1036).³⁶

Underground storage tank regulations, ARM 16.45.602(2)(c), provide that vapor concentrations measured as gasoline in surface and subsurface structures must be reduced to a level below the following action levels: 1300 ppm to guard against fire or explosion; 30 ppm to protect the health of individuals exposed in affected structures 8 hours per day, five days per week; and 7 ppm to protect the health of individuals exposed in affected structures with full time occupancy.

F. Asbestos Regulation

Various regulations govern the management of asbestos and asbestos containing wastes. Some wastes at the site contain asbestos, and the following regulations are applicable to the management, handling and ultimate disposal of those wastes.

In addition to the air quality standards discussed in this section, 40 CFR § 141.62 establishes an MCL for asbestos, effective July 30, 1992. See discussion of MCL's above.

1. National Emission Standard for Asbestos³⁷

40 CFR § 61.145. (Applicable). Standard for demolition and renovation. This section contains standards for demolition or renovation of a facility. ("Facility" is defined at § 61.141 to include buildings and waste disposal sites.) The standards are designed to reduce or eliminate asbestos emissions from such operations, and include provisions for notification regarding intended project, wetting of asbestos materials, use of exhaust systems, careful movement of asbestos materials, and presence on site of a trained asbestos removal person. This section applies to any demolition or renovation of a structure, installation, building, or waste disposal area at the site.

40 CFR § 61.150. (Applicable). Standard for waste disposal for manufacturing, fabricating, demolition, renovation, and spraying operations. There must be no visible emissions to the outside air during the collection, processing, packaging, or transporting of any asbestos-containing waste material that results from the listed operations. All asbestos-containing waste material must be deposited at a waste disposal site operated in accordance with § 61.154.

40 CFR § 61.151. (Applicable). Standard for inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations. There must either be no discharge of visible emissions from the site to the outside air, or the specified covering or treatment methods must be followed. Warning signs must be posted and prior notice must be given to EPA or the State before the waste material is excavated or disturbed. This section, rather than § 61.154, is applicable if the waste disposal site is closed to future disposal of asbestos-containing waste. See 40 CFR § 61.154(g).

36. These regulations have not yet been implemented as part of Montana's authorized RCRA program and are enforceable in Montana under EPA's HSWA authorities.

37. As of March 1992, the State regulation at ARM § 16.8.1424 adopted the July 1990 federal National Emission Standard for Asbestos. In November 1990 the federal regulation was substantially revised. See 55 Fed. Reg. 48406 (November 20, 1990). The State regulation may be modified in 1992 to incorporate the latest federal regulations. Until that time, the current federal regulations are applicable and enforceable as federal law. The references in the text are to the 1991 CFR.

40 CFR § 61.154. (Applicable). Standard for active waste disposal sites. There must either be no discharge of visible emissions to the outside air from the site, or the specified covering or treatment methods must be followed. This section requires warning signs, disposal recordkeeping, and notice to EPA or the State before the waste material is excavated or disturbed. When the site is closed to further disposal of asbestos-containing waste, § 61.151 must be followed.

2. Federal Occupational Health Regulations

29 CFR § 1910.1001(c) (Applicable). Permissible Exposure Limits for Asbestos. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos, tremolite, anthophyllite, actinolite, or a combination of these minerals in excess of (1) 0.2 fiber per cubic centimeter of air as an eight (8)-hour time-weighted average (TWA); or (2) 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes. See also, 29 CFR § 1926.58.

3. Montana Asbestos Control Act

The Montana Asbestos Control Act, §§ 75-2-501 et seq., MCA, and implementing rules establish standards and procedures for accreditation of asbestos-related occupations and control of the work performed by persons in asbestos-related occupations.

§ 75-2-511, MCA (Applicable). Accreditation requirements --restrictions. A permit from DHES is required before any person can conduct an asbestos project. The definition of "asbestos project" includes the removal, transportation, or disposal of asbestos-containing waste. § 75-2-502(4), MCA; ARM 16.42.302(3). In addition, a person who inspects, plans, designs, supervises, contracts for or works on an asbestos project must meet DHES training and accreditation requirements.

ARM 16.42.308 (Applicable). Requirements of accreditation and permitting for persons engaged in an asbestos-type occupation. No person may engage in an asbestos-type occupation unless accredited in that occupation or may employ or subcontract with nonaccredited individuals or contractors. No person may conduct an asbestos abatement project without a permit.

ARM 16.42.321 (Applicable). Asbestos abatement project permits. Asbestos abatement projects require a permit from DHES. The permit conditions include but are not limited to:

- a. a requirement that all work performed be in accordance with 29 CFR § 1926.58 (asbestos standards for the construction industry); and 40 CFR §§ 763.120, 121 (requirements for asbestos abatement projects);
- b. a requirement that all asbestos be properly disposed in an approved asbestos disposal facility. "Approved asbestos disposal facility" is defined at ARM 16.42.302(1) as a properly operated and licensed class II landfill as described in ARM 16.14.504;
- c. a requirement that asbestos be disposed in accordance with 40 CFR Part 61, Subpart M (National Emission Standard for Asbestos). See discussion above on National Emission Standard for Asbestos.

ARM 16.42.324 (Applicable). Asbestos abatement project control measures. An accredited asbestos abatement supervisor must be physically present at all times at the work-site where a permitted asbestos abatement project is being performed and must be accessible to all workers. On-site air monitoring must be conducted by an accredited asbestos contractor/supervisor, an engineer or industrial hygienist.

ARM 16.42.325 (Applicable). Recordkeeping. Records of each asbestos abatement project must be retained for a minimum of 30 years and must be made available to DHES at any reasonable time. This section provides a non-inclusive list of the records to be retained.

4. Asbestos Regulation in Building Construction and Demolition

Sections 50-64-101 et seq., MCA, and implementing regulations at ARM 8.70.701 et seq. regulate asbestos spray applications and demolition of structures that contain asbestos. These sections would be applicable if cleanup at the site involves demolition of a structure containing asbestos.

§ 50-64-104, MCA. Safeguards to follow during demolition. This section provides for various safeguards to prevent release of asbestos into the air. The prescribed safeguards include notification of the local fire department, posting of warning signs, wetting of surfaces, dust emission control, covering and wetting during transport, and depositing at a landfill where materials are unlikely to be disturbed and where signs warn that asbestos-containing material is buried in the landfill.

ARM 8.70.702. Building demolitions. Before demolition a building permit must be obtained from the appropriate jurisdiction.

LOCATION-SPECIFIC REQUIREMENTS

I. Resource Conservation and Recovery Act Regulations

A. Criteria for Classification of Solid Waste Disposal Facilities and Practices

The criteria contained in 40 CFR Part 257, (see also recent revisions to Part 257 at 56 Fed. Reg. 51016, October 9, 1991) establish standards with which solid waste disposal must comply to avoid possible adverse effects on health or the environment. These criteria apply to any remedial alternatives which require any type of on-site solid waste disposal. The criteria do not apply to hazardous waste disposal which is subject to regulation under subtitle C of RCRA.

Part 257.3-1(a) requires that facilities or practices in the floodplain not result in the washout of solid waste so as to pose a hazard to human life, wildlife, or land or water resources. Part 257.3-2 provides for the protection of threatened or endangered species. Part 257.3-3 provides that a facility shall not cause the discharge of pollutants into waters of the United States. Part 257.3-4 states that a facility or practice shall not contaminate underground drinking water.

B. Location Standards for Hazardous Waste Facilities

The requirements set forth at 40 CFR § 264.18(a) and (b)³⁸ provide that (a) any hazardous waste treatment, storage or disposal facility must not be located within 61 meters (200 feet) of a fault (see Appendix VI of Part 264), and (b) any hazardous waste facility within the 100 year floodplain must be designed, constructed, operated and maintained to avoid washout. Any discrete hazardous waste disposal or storage facilities which remain on-site as part of remedial activities must meet these standards.

II. Floodplain Management

While the site itself does not lie in a designated floodway or floodplain, the following standards are included here to indicate the restrictions on any related activities that might occur in or affect the floodway or floodplain.

A. Montana Floodplain and Floodway Management Act

Section 76-5-401, MCA, (Applicable) specifies the uses permissible in a floodway and generally prohibits permanent structures, fill, or permanent storage of materials or equipment.

Section 76-5-402, MCA, (Applicable) specifies uses allowed in the floodplain, excluding the floodway, and allows structures meeting certain minimum standards.

Section 76-5-403, MCA, (Applicable) lists certain uses which are prohibited in a designated floodway, including:

1. any building for living purposes or place of assembly or permanent use by human beings,
2. any structure or excavation that will cause water to be diverted from the established floodway, cause erosion, obstruct the natural flow of water, or reduce the carrying capacity of the floodway, or
3. the construction or permanent storage of an object subject to flotation or movement during flood level periods.

B. Floodplain Management Regulations

ARM 36.15.216 (Applicable) specifies factors to consider in determining whether a permit should be issued to establish or alter an artificial obstruction or nonconforming use in the floodplain or floodway. In evaluating proposed remedial alternatives which involve artificial obstructions or nonconforming uses in the floodway or floodplain, the following criteria must be considered:

1. the danger to life and property from backwater or diverted flow caused by the obstruction;
2. the danger that the obstruction will be swept downstream to the injury of others;

38. These requirements are applicable through their incorporation by reference in Montana's regulations for its authorized RCRA program. ARM 16.44.702.

3. the availability of alternative locations;
4. the construction or alteration of the obstruction in such a manner as to lessen the danger;
5. the permanence of the obstruction;
6. the anticipated development in the foreseeable future of the area which may be affected by the obstruction.

ARM 36.15.604 (Applicable) precludes new construction or alteration of an artificial obstruction that will significantly increase the upstream elevation of the flood of 100-year frequency ($\frac{1}{2}$ foot or as otherwise determined by the permit issuing authority) or significantly increase flood velocities.

ARM 36.15.605(1) and ARM 36.15.605(2) (Applicable) enumerate artificial obstructions and nonconforming uses that are prohibited within the designated floodway except as allowed by permit and includes "a structure or excavation that will cause water to be diverted from the established floodway, cause erosion, obstruct the natural flow of water, or reduce the carrying capacity of the floodway" Solid and hazardous waste disposal and storage of toxic, flammable, hazardous, or explosive materials are also prohibited.

ARM 36.15.703 (Applicable) is applicable in flood fringe areas (i.e., areas in the floodplain but outside of the designated floodway) of the site and prohibits, with limited exceptions, solid and hazardous waste disposal and storage of toxic, flammable, hazardous, or explosive materials.

III. Federal Location Specific Standards To Be Considered

Certain requirements are technically applicable only to government action or government funded or licensed projects. Several such requirements are commonly included as applicable requirements for cleanups. At sites subject to the NCP these requirements are usually observed even though they are administrative requirements, e.g., consultation requirements, which are normally not considered ARARs. See CERCLA Compliance with Other Laws Manual: Part II, August 1989, p. 4-4. These requirements are specified here to note additional factors that should be considered in decisions to be made at the site.

A. Endangered Species Protection

The Endangered Species Act of 1973 and the implementing regulations, see 16 USC §§ 1531-1544, 50 CFR Part 17, and 40 CFR § 6.302(h), provide for listing of endangered and threatened species and prohibit certain activities pertaining to those species. See also § 87-5-103, MCA, (endangered species should be protected in order to maintain and to the extent possible enhance their numbers) and ARM 12.5.201 (certain activities are prohibited with respect to specified endangered species). Compliance with these requirements typically involves consultation with the U.S. Fish and Wildlife Service, resulting in a determination as to whether there are listed or proposed species or critical habitats present on the site, and, if so, whether any proposed activities will impact such wildlife or habitat.

As noted above in the section on Criteria for Classification of Solid Waste Disposal Facilities and Practices, practices relating to solid waste disposal must provide for

the protection of endangered species and habitat for such species. See 40 CFR § 257.3-2. If it is determined that no endangered or threatened species are found at the site, no further action would be necessary to comply with this requirement.

B. Fish and Wildlife Coordination Act

This standard (16 U.S.C. §§ 1531-1566, 40 CFR § 6.302(g)) requires that federal agencies or federally-funded projects ensure that any modification of any stream or other water body affected by any action authorized or funded by the federal agency provides for adequate protection of fish and wildlife resources. Compliance with this requirement typically involves consultation with the U.S. Fish and Wildlife Service and the Wildlife Resources Agency of the affected State to ascertain the means and measures necessary to mitigate, prevent and compensate for project-related losses of wildlife resources and to enhance the resources. If alternatives, as developed, will affect a stream, such consultation would be appropriate and specific mitigative measures could be identified in consultation with the appropriate agencies.

C. Wetlands Protection

40 CFR Part 6, Appendix A, Executive Order No. 11990 contains requirements to avoid, to the extent possible, the adverse impacts associated with the destruction or loss of wetlands and to avoid support of new construction in wetlands if a practicable alternative exists.

D. Cultural Resource Protection

The National Historic Preservation Act and its implementing regulations, see 16 USC § 470, 40 CFR § 6.301(b), and 36 CFR Part 800, specify procedures for ensuring that the effects of remedial activities on historic properties included or eligible for inclusion on the National Register of Historic Places are taken into account.

The Archeological and Historic Preservation Act and its implementing regulations, see 16 USC § 469, 40 CFR § 469, and 40 CFR § 6.301(c), provide for the preservation of historical and archaeological data that might be lost through alteration of terrain.

OTHER LAWS

The following "other laws" are included here to provide a reminder of other legally applicable requirements for actions being conducted at the site. They do not purport to be an exhaustive list of such legal requirements, but are included because they set out related concerns that must be addressed and, in some cases, may require some advance planning.

I. Filing of Well Log Reports

A. Montana Groundwater Act

Section 85-2-516, MCA, states that within 60 days after any well is completed a well log report must be filed by the driller with the DNRC and the appropriate county clerk and recorder.

II. Occupational Safety and Health Regulations

A. Federal Occupational Safety and Health Act

29 CFR Part 1910. These regulations promulgated pursuant to the Occupational Safety and Health Act are applicable to all workers at the site. See also, 29 CFR Part 1926.

29 CFR § 1910.1000. Air contaminants. Exposure limits are set for numerous contaminants. These exposure limits must not be exceeded.

B. Montana Occupational Health Act, §§ 50-70-101 et seq., MCA.

ARM § 16.42.101 addresses occupational noise. In accordance with this section, no worker shall be exposed to noise levels in excess of the levels specified in this regulation. This regulation is applicable only to limited categories of workers, and for most workers the similar federal standard in 29 CFR § 1910.95 applies.

ARM § 16.42.102 addresses occupational air contaminants. The purpose of this rule is to establish maximum threshold limit values for air contaminants under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse health effects. In accordance with this rule, no worker shall be exposed to air contaminant levels in excess of the threshold limit values listed in the regulation. This regulation is applicable only to limited categories of workers, and for most workers the similar federal standard in 29 CFR § 1910.1000 applies.

C. Montana Safety Act

Sections 50-71-201, 202 and 203, MCA, state that every employer must provide and maintain a safe place of employment, provide and require use of safety devices and safeguards, and ensure that operations and processes are reasonably adequate to render the place of employment safe. The employer must also do every other thing reasonably necessary to protect the life and safety of its employees. Employees are prohibited from refusing to use or interfering with the use of safety devices.

D. Employee and Community Hazardous Chemical Information Act

Sections 50-78-201, 202, and 204, MCA, state that each employer must post notice of employee rights, maintain at the work place a list of chemical names of each chemical in the work place, and indicate the work area where the chemical is stored or used. Employees must be informed of the chemicals at the work place and trained in the proper handling of the chemicals.

